

**APPENDIX A  
RESPONSE TO ECOLOGY COMMENTS ON  
REMEDIAL INVESTIGATION/FEASIBILITY STUDY SCOPING PLAN**

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This appendix presents responses to the Remedial Investigation/Feasibility Study (RI/FS) Scoping Plan (Hart Crowser, 2003) comments issued by Mike Blum and Dan Alexanian of Ecology on December 11, 2003. These comments were discussed at a meeting held at Ecology's Southwest Regional Office on December 15, 2003. Responses to Ecology comments are presented in italics along with action items and RI/FS scope revisions negotiated at the December 15th meeting.

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### Notes:

DA#1 - Dan Alexanian Comment Number 1

MB#1 - Mike Blum Comment Number 1

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|---|---|---|
| <b>1.0 Risk Assessment and Work Plan</b><br>A | DA#1. Page (p) 1; p 1-17: The Scoping Plan does not discuss a Risk Assessment report which is required in addition to the RI and FS.  | <i>Currently there are no plans to develop a site-specific risk assessment. An evaluation of potential routes of exposure, appropriate exposure scenarios, Reasonable Maximum Exposure(s) (RME), and potential modifications to standard Method B/C equations will be included as part of the Remedial Investigation (RI) per WAC 173-340-350. A terrestrial ecological evaluation will also be performed as part of the RI per WAC 173-340-7490. If remediation levels are developed, analysis for RME modifications will be included in the Feasibility Study (FS).</i> |
| B   | MB#12. Remember, the eco-risk cleanup number for lead is 118 ppm, not the 250 ppm as it relates to human health (unrestricted land use value).  | <i>We understand that the MTCA ecological lead indicator concentration for terrestrial wildlife is 118 ppm. The MTCA terrestrial wildlife ecological indicator concentrations will be considered as soil screening levels for evaluation of the RI soil data.</i>   |
| C   | MB#26. When sampling, the goal is to determine whether a contaminant is detected, and if so, at what concentration. The premise for sampling should not be to confirm the absence of a contaminant; otherwise it implies that the goal is to not find anything. That contributes to making the results seem suspect or sample locations/depths seem questionable when the concentrations are very low or non-detectable. It is a perception issue/concern. In other words, prove if there is a problem, not prove that there isn't a problem. | <i>Comment noted.</i>   |
| D   | MB#28. I don't see (haven't found) the 1994 Campbell and Dunkin report on Will Abercrombie's list of site   | <i>The report was listed under Dyno Nobel, 1994. We agreed to send Ecology a copy of this report. A copy</i>  |

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|  | related documents.   | <i>of this report was mailed to Mike Blum of Ecology in December of 2003.</i>   |
| E  | MB#31. Page 1-4, Dyno Nobel Site Wide Cleanup: Are the "1,000's of yards of soil" the same as the 1,400 yards mentioned above.           | <i>No. The "1,000s of yards of soil" were taken from language included in the 1995 Site Hazard Assessment that described the volume of petroleum-impacted soil removed by Dyno during their 1990s voluntary cleanup of the MEAN and Powder Plant areas. Dyno did not specify the quantities of excavated impacted soil in its cleanup reports.</i>  |
| F  | MB#45. Page 1-15, middle paragraph: Are sympathetic detonations proposed for the explosives clearing program?                            | <i>Not at this time. The Explosive Hazard Assessment (EHA) being developed in conjunction with the RI Work Plan will address procedures that can be used to safely conduct RI field activities.</i>   |
| G  | MB#48. Page 1-16, bottom paragraph: Public comment is needed before the draft RI gets finalized.   | <i>Comment noted.</i>   |
| H  | MB#49. Page 2-1, Objectives: How do the soil concentrations compare to the eco-risk numbers (often lower than the human health numbers)? | <i>Terrestrial ecological risk will be evaluated as part of the RI/FS in accordance with WAC 173-340-7490.</i>  |
| <b>2.0 Building Location, Construction Issues, and Demolition</b><br>A | DA#2. p 1-1: "...various buildings ... have been demolished...." How? Burning?   | <i>Derick Pyle (former Hercules employee) indicated that buildings within the Old and New Nitrator areas were, generally, burned when Hercules ceased operations at the site (approximately 1968). According to Mr. Pyle, the DNT Melting House was initially abandoned in place. However, since the building is no longer present in the Old Nitrator Area, the method used to demolish this building is not known. During cleanup activities conducted in the early 1990s, Dyno Nobel demolished four magazines by burning them and</i> |

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|                    |   | <i>disposing of the residual burned ash material at an off-site facility.</i>   |
| B                  | DA#3. p 1-2 & following: There are many references similar to "The location of [...] is somewhat uncertain" or "... exact location currently unknown". This is one reason why a tighter grid is needed (other reasons are discussed below). | <i>The primary unknown regarding building locations is the exact location of DNT Melting House. Mr. Pyle mentioned two potential locations for the building in the vicinity of the Mix House. Based on discussions with Ed Meeks (Hercules consultant who has worked on a number of former Hercules dynamite manufacturing facilities) and review of site aerial photographs, the most likely scenario is that the Melting House was part of the Buggy House located along the Buggy Path. Regarding Magazine 2, locations of the buildings in question are well documented by aerial photographs and existing maps. There are two possible locations where Magazine 2 may have been located. After obtaining additional aerial photos and having discussions with Ken Dunkin of APPCO, we believe that the structure located in the southeast corner of the site is Magazine 2. The other location, the small building located west of the MEAN Plant, did have a barricade and may have served as a small magazine post-1967.</i> |
| C                  | DA#35. p 2-6: DNT melting House: "...two different potential locations for this facility...."<br>A tighter grid will reduce uncertainties deriving from unsure facility locations.  | <i>Please see response 2.B (Comment DA#3).</i>  |
| D                  | DA#36. p 2-7: "... the location of the Magazine 2 was possibly misidentified...." "The actual location may be..."   | <i>Please see response 2.B (Comment DA#3).</i>  |

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|                    | A tighter grid will reduce uncertainties deriving from unsure facility locations.                |  |
| E                  | MB#2. What were the site building made out of? Wood? Concrete? Brick? Other?                     | <i>Most of the existing buildings are constructed of brick, concrete, and metal. Several small wood structures are also present. We do not have as-builts for demolished structures.</i>   |
| F                  | MB#3. What were the foundations made of? Wood? Concrete? Other?                                  | <i>Foundations of existing buildings are composed primarily of concrete. As mentioned previously, we do not have as-builts for demolished structures. However, we have observed concrete slabs and concrete foundation debris at various locations, including the New and Old Nitrator areas. Dyno reported that the four magazine building walls and floors were made out of wood. Ken Dunkin of APPCO indicated that Magazine 1 had a concrete foundation.</i>   |
| G                  | MB#4. How were buildings "decommissioned"? Knocked down? Burned? Dismantled?                     | <i>Former Hercules employee Derick Pyle indicated that many of the dynamite production buildings were decommissioned by burning the structures (approximately 1968). According to Mr. Pyle, the DNT Melting House was initially abandoned in place. However, since the building is no longer present in the Old Nitrator Area, the method used to demolish this building is not known. During cleanup activities conducted in the early 1990s, Dyno demolished four magazines by burning them and disposing of the residual burned ash material at an off-site facility.</i> |
| H                  | MB#5. What about documented use of lead in buildings, as a non-sparking material? Which ones had | <i>As mentioned previously, we do not have as-builts for the plant buildings. We have not observed any lead</i>  |

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|   | lead sheathing? What about other uses of lead in buildings that were burned?   | <i>flooring or sheathing in existing buildings. Mr. Pyle indicated that a number of decommissioned dynamite production structures contained lead flooring and/or sheathing including the Nitrocotton House, Dynamite and Gelatin houses, nitrator buildings, and labs.</i>   |
| I   | MB#16. Is the caretaker home still occupied? What about the heating oil UST? Has it been removed?  | <i>The caretaker home is still occupied. The heating oil tank may still be present; a vent and fill port were observed during the Phase I site reconnaissance performed by Hart Crowser in October of 2002 (see Phase 1 Environmental Site Assessment document issued by Hart Crowser on February 20, 2003).</i>   |
| J   | MB#29. Page 1-2, top paragraph: Has there been sampling at each building location? I assume not, especially if the exact location of some buildings are currently unknown. | <i>As part of the Phase 2 investigation, soils at a number of building locations (including dynamite/gelatin houses and four magazines) were sampled. Dyno sampled and remediated soils along many of the existing buildings in the Powder Plant area. We are proposing to sample at the former building locations within the Old and New Nitrator areas and collect samples at the magazines as part of the RI field investigation. The primary unknown regarding building locations is limited to the exact location of the DNT Melting House.</i> |
| 3.0 Area Wide<br>Surface Soil Issues<br><br>A | DA#13. p 1-11: "Surface soil samples generally did not contain...." I'm not sure what "generally" means since it appears much of the previous sampling was TPH specific.   | <i>As noted on Table 2 in the Site Wide Phase 2 Environmental Assessment Report (dated February 24, 2003), these surface soil samples were tested for metals and a portion of them were also tested for nitroaromatics, nitroamines (EPA Method 8330), and semivolatile organics (EPA Method 8270). Only one of</i>  |



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|                    |  | <i>the Phase 2 surface soil samples was tested solely for TPH (CY-SS1 collected from the Culvert Yard).</i>  |
| B                  | DA#26. p 2-2 and following: "Surface soil samples ... will be homogenized ... A total of 27 discrete...." So will the samples be composites (i.e., homogenized) or discrettes? This confusion occurs throughout the document.  | <i>All surface soils to be sampled as part of the RI field investigation will be collected as discrete samples. Surface vegetation and duff will be removed prior to placing soil collected within the upper 0.5 foot into a stainless steel bowl. To provide more homogenous samples for chemical analysis, soil to be analyzed for non-volatile constituents will be mixed using a stainless steel spoon prior to being placed into clean sampling jars.</i> |
| C                  | DA#39. p 2-11: "... soil samples will be collected downwind of the explosives production and magazine areas." This implies we know what direction the wind was blowing (if at all) when the plant was "decommissioned". Do we know this? I understand winds are generally from the south-southwest, but that doesn't guarantee the wind was blowing that direction during the decommissioning. Again, this is further justification for a tighter expanded grid. | <i>Please see response 3.D (Comment DA#40).</i>  |
| D                  | DA#40. p 2-12: "A staggered 1,000-foot grid.... approximately 27 surface soil samples...." This is unacceptable. The grid is not tight enough (it appears the entire powder area fits within two of the 1,000-foot sampling points!) and doesn't extend far enough to the south. Even though W/D started with a 500-foot grid, that appeared sufficient to answer the yes/no question. It of course did not answer the "where                                    | <i>Based on discussions with Ecology, the aerial deposition grid sampling proposed in the Scoping Memo will be modified to include a 500-foot grid that will be extended to include the Magazine 3 and 4 areas.</i>  |

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|                    | are the hotspots" question which necessitated later sampling using a tighter grid.                                      |   |
| E                  | MB#1. What were the methods of weed control used at the site? I am thinking about weed control as part of fire control. | <i>We currently do not have documentation of weed control activities performed at the Pacific Powder site. We are aware that the facility had an extensive fire hydrant system. We were also informed that the Pacific Powder operators planted and maintained forests to keep more flammable "prairie grass" under control. Ken Dunkin of APPCO stated that vegetation was controlled by physical means (e.g., cutting) rather than application of herbicides during his tenure (1983 to 1994). It is possible that additional information regarding weed control can be obtained from Dyno Nobel (Dyno) or Bill Garson.</i>   |
| F                  | MB#6. What other metals contamination, besides lead and arsenic, have been discovered?                                  | <i>Dyno detected cadmium in an ABS Landfill sample at 4 mg/kg. However, cadmium was not detected in groundwater sampled by Hart Crowser within the ABS Landfill/Drum Burial Area at concentrations exceeding the MTCA Method A drinking water cleanup level. We tested 37 soil samples in the Phase 2 investigation (see Site Wide Phase 2 Environmental Assessment document issued by Hart Crowser on February 24, 2003) for eight metals (including As, Cd, Cr, Cu, Hg, Pb, Ni, and Zn). Most of the metal concentrations were within Puget Sound background concentrations and/or below MTCA Method A or B unrestricted cleanup levels (except arsenic in two soil samples).</i> |
| G                  | MB#7. Is there information about the use of other   | <i>Please see response 3.E (Comment MB#1).</i>  |

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|                    | herbicides beside Pb, As, or chlorinated compounds?<br>What about use of other pesticides?   |   |
| H                  | MB#8. Are the trench samples collected from too deep of a horizon (2 to 3 feet), especially since the aerial deposition of lead would be surficial?    | <i>The aerial deposition of lead is being evaluated using surface soil samples (upper 6 inches). The trench samples are primarily being used to evaluate potential subsurface releases of explosives (e.g., DNT, nitroglycerin) or burying of lead-containing materials.</i>  |
| I                  | MB#10. Why the focus on Pb and As? Is that due to the DuPont site?   | <i>Soils are being sampled for lead due to known presence of lead flooring and sheathing and potential presence of lead-based paint. Given historical practices observed at the DuPont site, it is possible that As was also used as an herbicide at the Pacific Powder site. Sampling for As is being performed to evaluate whether arsenic is a potential constituent of concern.</i> |
| J                  | MB#11. What about an area-wide grid sampling approach for lead due to burning? Arsenic, if used as an herbicide, would be more site/location specific. | <i>We are proposing an area-wide grid sampling for lead in the RI Scope of Work. We are proposing to also test these soils for arsenic to assess potential impacts associated with herbicide applications.</i>  |
| K                  | MB#42. Page 1-11, first paragraph: What denotes surface soils? What depth?   | <i>Surface soil samples were collected from the upper 6 inches of soil (excluding surface vegetation).</i>  |
| L                  | MB#46. Page 1-16, top bullet: Need to add grid sampling, especially for lead.  | <i>Surface soil grid sampling for lead was proposed for a number of areas as part of the RI Scoping Memo. Based on discussions with Ecology, the area-wide sampling grid used to evaluate aerial deposition of lead was modified to include 500-foot grid spacing and extending the grid southward to include areas surrounding Magazines 3 and 4.</i>                                  |
| M                  | MB#67. Page 2-11, Area-wide surface soil sampling: The   | <i>Please see response 3.J (Comment MB#11).</i>   |

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|  | aerial dispersion concern is from lead and burning buildings. Arsenic, if found, is from spraying of herbicides, not burning.   |   |
| N  | MB#68. Page 2-12, Area-wide sampling: A tighter grid (less than 1,000 ft) is needed.  | <i>Please see response 3.L (Comment MB#46).</i>   |
| <b>4.0 Analytical Method and Detection Limits</b><br><br>A | DA#7. p 1-7: We use EPA Method 8095 for DNT at the W/D site.  | <i>We checked with a number of local labs and could not find one that is currently using this method. Ecology indicated at the meeting that they would check to see what lab(s) are performing Method 8095. Mike Blum of Ecology responded in January 12, 2004, e-mail that there are currently no labs certified by Ecology to perform Method 8095 and that Method 8330 should be used for the RI field investigation.</i> |
| B  | MB#13. How about using a combination of EPA methods #8330 and #8095 to get lower detection limits, and therefore (I assume), lower PQLs?  | <i>Please see response 4.A (Comment DA#7).</i>  |
| C  | MB#14. What about using Method Detection Limits rather than PQLs for making remedial action decisions?  | <i>We anticipate addressing PQL issues in accordance with WAC 173-340-707. As discussed above, Ecology agreed to evaluate whether the more sensitive EPA Method 8095 can be used for the RI field investigation. Please see response 4.A (Comment DA#7).</i>  |
| D  | MB#19. What are the PQL's that are used for DNT in water - especially comparing 2,4 DNT and 2,6-DNT in comparison to 2,4 and 2,6 combined? If the PQL is 0.4 ppb for each, why is it 0.8 for the total DNT concentration? | <i>We calculated the PQL for total DNT as the sum of the 2,4-DNT (0.4 ppb) and 2,6-DNT (0.4 ppb) PQLs using EPA Method 8330.</i>  |
| E  | MB#51. Page 2-2, top paragraph: Is there some type of "generic" scan for pesticides? Do we really need the  | <i>We are not aware of a "generic" scan for pesticides. However, the proposed testing of As, Pb, and</i>  |

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|   | samples on either side of the tracks, at this point in time?  | <i>chlorinated herbicides should be adequate for evaluating the most common herbicides that tend to be more persistent in the environment. As discussed in the response 7.C (Comment DA#22), the proposed sampling program for the NGRR has been revised per discussions with Ecology.</i>   |
| F   | MB#58. Page 2-5: What is the cost of analyzing all priority pollutant metals versus just Pb and As?   | <i>Depending on detection limit requirements and methods used, testing for priority pollutant metals versus just Pb and As will be roughly five times more expensive (approximately \$200 vs. \$40 per sample).</i>  |
| <b>5.0 Dyno Nobel Sampling Issues</b><br><br>A          | DA#18. p 1-13: "Previous field investigations and cleanup actions...." Documentation of the previous field investigations and cleanup actions, if even available, leave many questions. For example, wasn't Dyno focusing on TPH only? How did they sample? Where did they sample? Were compliance samples collected? Where? This is why a tighter grid is so necessary. And, while "additional soil quality investigations will be conducted", additional groundwater investigations may also be needed. | <i>Groundwater quality was evaluated in areas where Dyno performed cleanup activities (including MEAN and Powder Plant areas) as part of the Phase 2 investigation. Additional groundwater sampling will be performed in these areas as part of the RI. Dyno recently provided additional documentation that could supplement our understanding of the quality of soils remaining in these remediated areas.</i> |
| <b>6.0 Comparison to the Dupont Works Site</b><br><br>A | DA#42. Table 2-1: The limited sampling for TPH sparked the question: How was power provided to the plant? Is it true they did not use petroleum (bunker, oil, diesel, etc) as at DuPont? If electricity was used, wouldn't that have been a hazard around explosives?   | <i>Pacific Powder did not have a power generation plant like the W/D site. Electrical transmission lines and heating oil tanks provided power to the Pacific Powder site. The W/D site also utilized transmission lines but the electricity was generated on-site by burning petroleum to make steam or hydropower generated by a creek flume.</i>   |

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| B                  | <p>DA#43. p A-1: I believe the “records of other catastrophic explosions” at the DuPont facility was due to its proximity to a major community (Tacoma). There was even an article in the Atlantic Monthly. In addition, DuPont is a company still in existence and records/employees were available for review. The former Pacific Powder site was situated in a more rural isolated area. Apparently operational records are not available. Regarding “There are no records of catastrophic explosions on the Pacific Powder line.”: Based on the apparent frequency of explosions at the DuPont facility, I think its highly unlikely explosions didn’t occur at the former Pacific Powder facility.</p> | <p><i>It is possible that an uncontrolled explosion event occurred at the site.</i></p>  |
| C                  | <p>DA#44. p A-2: “Conversely, ANFO was produced at the former Pacific Powder site.....”<br/>Have we taken this into account in our sampling - nitrates, fuel, etc?</p>  | <p><i>Groundwater wells installed in the MEAN and Powder Plant areas were tested for the presence of petroleum, ammonia, and nitrate during the Phase 2 investigation. Additional testing for these parameters has been proposed in the RI Scoping Memo.</i></p> |
| D                  | <p>DA#45. p A-2; Operational Duration: Dynamite production at the DuPont Works site began in 1909 and continued until 1976 (67 years). Dynamite production at Pacific Powder began in 1940 and continued until 1968 (28 years). Following ... ANFO and other ... explosive products were manufactured until approximately 1993.”<br/>This paragraph is misleading. The DuPont operation could also be broken down into ‘periods’. The point is, if you compare years of explosive operation, DuPont operated for 67 years and Pacific Powder operated for</p>   | <p><i>A recently obtained aerial photo shows that the plant was not constructed prior to June of 1941.</i></p>   |

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|  | 53 years. That's pretty close!   |   |
| <b>7.0 Narrow and Standard Gauge Railroad</b><br>A | DA#20. p 2-1: Were the Phase II NGRR surface soil samples collected on a grid or at random?  | <i>Surface soil samples were collected at individual Dynamite and Gelatin House building locations along the NGRR. Within each building location, samples were spatially distributed in a random pattern.</i>   |
| B  | <p>DA#21. p 2-1 "Discrete surface (upper 6 inches) soil samples will be collected at approximately 200-foot intervals along the NGRR ... Along the southern portion of the NGRR, sample intervals will be placed between ... locations that have already been sampled. Because most of the area ... has been disturbed ... will not be sampled at this time ... Nine sampling location will be established along the NGRR."</p> <p>How will the "upper six inch soil samples" be collected? Will they be a composite of the upper six inches or will a discrete sample be taken somewhere within the six inches?</p> | <i>Discrete soil samples will be collected across the 0- to 6-inch depth profile (excluding surface vegetation). Soil will be homogenized in a stainless steel bowl before being placed in clean sampling jars.</i>   |
| C  | <p>DA#22. This sampling exercise will answer the question of whether or not arsenic exists along the NGRR. Therefore, nine sample locations along the NGRR is not sufficient to provide a defensible "yes/no" answer to that question. If the sampling grid isn't tighter, we won't be able to say with any confidence that arsenic was not present along the NGRR. In addition, based on Ecology's recent site visit, we're not exactly sure where the NGRR bed existed. We've used a 75-foot spacing at W/D where we knew exactly where the NGRR bed was. At</p>   | <i>Based on discussions with Ecology we have revised the sampling program for the NGRR to include sampling on 100-foot intervals on the former grade with alternating samples on the sides of it. In areas where the NGRR sample locations overlap with other existing or proposed sampling locations, only one set of samples will be collected rather than sampling the same soil multiple times. Based on available site plans and aerial photographs, we believe we can accurately identify the location of the former NGRR in the field.</i> |

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|                    | this site we shouldn't be using anything greater than 100-foot spacing - at a maximum.   |  |
| D                  | DA#23. At what intervals ("Along the southern portion") will sampling occur?   | <i>Please see response 7.C (Comment DA#22).</i>  |
| E                  | DA#24. Despite recent disturbances, this area should be sampled. Dyno's cleanup activities were focused on petroleum and more importantly were not well documented. Not sampling this area will leave unanswered questions. Regarding additional characterization of the Powder Plant area.... This area should be sampled (i.e., on the grid) while the rest of the NGRR is sampled. This may likely be the area where herbicide application occurred most often. | <i>Please see response 7.C (Comment DA#22).</i>  |
| F                  | DA#25. p 2-2: "The three samples will be collected approximately 15 feet apart...." Does this mean the outer samples will be collected 15 feet away from the middle sample or 7.5 feet from the middle?  | <i>Sampling along the NGRR has been modified to include collecting a pair of samples at 100-foot intervals rather than three samples at 200-foot intervals (see response 7.C (Comment DA#22). At each sampling location, one sample will be collected along the former NGRR bed and a second sample will be collected approximately 15 feet perpendicular to the RR line in an alternating pattern (left or right of the bed).</i> |
| G                  | DA#27. p 2-2: "... soil samples will be collected at approximately 300-foot intervals...." "... 1400 feet long, five sampling locations will be established." "Because most of the area ... has been disturbed ... sampling ... will be limited...."<br>As stated above regarding the NGRR, this sampling exercise will answer the question of whether or not  | <i>Due to the relative lack of impacts along the SGRR line at the W/D site, Ecology has agreed to maintain the proposed SGRR sampling interval.</i>  |



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|                    | <p>arsenic exists along the RR spur. Therefore, five sample locations along the RR spur is not sufficient to provide a defensible “yes/no” answer to that question. If the sampling grid isn’t tighter, we won’t be able to say with any confidence that contamination was not present along the RR spur. In addition, a shorter operation period is really irrelevant and does not mean that contamination (e.g., spills) did not occur. We’ve used a 75-foot spacing at W/D. At this site, for the RR spur, we shouldn’t be using anything greater than 100-foot spacing - at a maximum. Again, just because the area has been disturbed does not mean it is not contaminated. Sampling should not be “limited to the eastern and western extensions” but should be grid sampled along the entire extent so the “yes/no” question can be resolved with confidence.</p> |  |
| H                  | <p>DA#28. p 2-2: “Three surface soil samples will be collected at each of the 10 sampling locations....” Is it ten or five sampling locations? In either case, the number is irrelevant as the sampling spacing (grid) should be no greater than 100-foot.</p>   | <p><i>There are 10 sampling locations proposed for the SGRR (5 locations on the MEAN Plant line and 5 locations on the Powder Plant line). As agreed during the December meeting, the proposed sampling interval will not be modified. See response 7.G (Comment DA#27).</i></p> |
| I                  | <p>MB#50. Page 2-1, Scope of Work: What is the length of the NGRR? There are two NGRR lines.</p>   | <p><i>The main line is roughly 3,100 feet and the north/south spur is approximately 650 feet.</i></p>  |
| J                  | <p>MB#52. Page 2-2, last paragraph: Again, do we need the samples on either side of the tracks now? Why not wait until the results are in from the track bed itself? Or collect the samples and if there are hits on the track bed</p>   | <p><i>Please see response 7.C (Comment DA#22).</i></p>   |

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|                                       | itself, then analyze the side samples.  |   |
| <b>8.0 Old and New Nitrator Areas</b> | DA#29. p 2-3: "... soil samples will be collected within a 50-foot grid pattern...." What does "within" mean? At the nodes, at the center of the box, a five-point composite within the box, etc?   | <i>Samples will be collected using a staggered grid pattern. Figures will be developed for the RI work plan showing how the sampling points will be established within each grid area.</i>  |
| A                                     |   |   |
| B                                     | DA#30. p 2-3: "To evaluate the potential for chlorinated organic herbicide use, two samples ... (based on visual observation)...." The sampling locations should also be keyed to foundations, obviously.   | <i>Sampling locations will be keyed to locations of former foundations.</i>   |
| C                                     | DA#31. p 2-4: "... collected ... from the trenches at depths of 2 to 3 feet below ground surface. One soil sample will be collected at the intercept of trenches (corresponding to the center of former building...." "... remaining four samples collected approximately 10 feet outside of the four edges of the former structure." Why are we collecting samples at two to three feet below ground surface? Is this how previous sampling was conducted? If so, this would explain why we're told in the report that site conditions don't appear to be "significantly impacted" since at W/D the contamination was primarily surficial. | <i>Soil sampling conducted as part of the Phase 2 investigation consisted entirely of surficial sampling (upper 6 inches). Additional surface soil sampling was proposed in the RI Scoping Memo (including within the Old Nitrator Area) to evaluate potential herbicide application impacts and aerial/surficial deposition of lead. Surface releases of nitroglycerin would likely have been cleaned up at time of release because of the explosion hazard, or biodegraded or destroyed during building decommissioning (burning). We believe it is more likely to find nitroglycerin in shallow subsurface soils (2 to 3 feet below grade). Based on discussions at the meeting, Ecology concurred with this approach.</i> |
| D                                     | DA#32. Why are samples proposed to be collected at the center of former buildings? If the building floors were concrete, would this make sense? It does make more sense if the building floors were wood and if the buildings were demolished by burning. Wouldn't it make more sense to sample closer to the   | <i>At the W/D site, DNT was found beneath building foundations. Based on discussions at the meeting, Ecology concurred with this approach.</i>  |

| Subject Categories | Ecology Comments   | Pacific Powder Team Response  |
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|                    | perimeter of the former building - say within two feet - since that's where herbicide application, melted lead, lead paint particles, etc would be concentrated?   |   |
| E                  | DA#33. p 2-4 and following: Same question about the depth of sampling in two to three foot deep trenches (and occasionally five feet deep); why are we sampling so deep? Unless sampling at this depth makes sense, we should be sampling closer to the surface. The decreased cost of trench digging will then allow for a sampling density tighter than the proposed 100-foot trenches.  | <i>Review of aerial photographs and discussions with Ed Meeks and Ken Dunkin indicate that, if present, the foundations for the Mix House, Old Nitrator, and/or Neutralizer House may be buried under more than 3 to 5 feet of soil - possibly at the base of the hills. Therefore, excavations may be extended to greater depths in an attempt to locate building foundations. One sample will be collected at the foundation level and tested for arsenic and lead. As noted in responses 8.C and 8.D (Comments DA#31 and DA#32), sampling for nitroglycerin and/or DNT beneath the building foundations is desirable based on findings at the W/D site. Based on discussions at the meeting, Ecology concurred with this approach.</i> |
| F                  | DA#34. p 2-5: "Because the New Nitrator Area was only in operation for less than 1 year...."<br>I understand the logic, but don't agree. I'm familiar with a state-of-the-art facility built to the RCRA inspector's standards. Yet, after only a few months of operation, soil and groundwater were contaminated. All that to say that length of operation unfortunately does not dictate whether a site is contaminated or not! Therefore, proposed sampling of this area is not adequate and should be revisited. | <i>Based on discussions at the meeting, Ecology concurred with focusing investigation of the New Nitrator area using the proposed surface soil sampling program and installation and sampling of a monitoring well installed downgradient of the Nitroglycerin Storehouse storage area.</i>   |
| G                  | MB#44. Page 1-13, middle paragraph: "In general, soil  | <i>Yes. A number of additional surface and subsurface soil</i>  |

| Subject Categories | Ecology Comments   | Pacific Powder Team Response  |
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|                    | quality...not as well characterized." So, is enough characterization sampling proposed in the dynamite production area?  | <i>samples have been proposed to evaluate soil quality issues associated with dynamite production facilities.</i>   |
| H                  | MB#53. Page 2-4: Any evidence of lead piping or lead joints being used in the "acid areas" of the plant? Why analyze for arsenic?  | <i>We have not seen any evidence of lead piping or lead joints within the Old or New Nitrator areas. Given historical practices observed at the W/D site, it is possible that As-based herbicides were applied within the nitrator areas.</i>   |
| I                  | MB#54. Page 2-4, NG Gutter System: What evidence of contamination will be examined for? Is NG contamination visible? Was there record of any NG releases on-site? If so, was an NG neutralizer used, and if so, what did it contain? | <i>Prior to reaching the Neutralizer House, the nitroglycerin solution should have been fairly acidic. Visual evidence of NG could include acid etching, staining, or disintegration of gravels and other soil material. Additional screening methods may be developed as part of the EHA. We do not have any records documenting nitroglycerin releases associated with the gutter system. If spills did occur, the NG would likely have exploded and not persisted in the soil.</i> |
| J                  | MB#55. Page 2-4, Neutralizer House: Again, what visual clues might one encounter?  | <i>Please see response 8.I (Comment MB#54).</i>   |
| K                  | MB#56. Page 2-5, top paragraph: What depth of samples are collected approximately 10 feet outside the building structures?   | <i>Subsurface soil samples will be collected 2 to 3 feet below foundation level (if found) unless evidence of contamination is observed at alternate depths.</i>  |
| L                  | MB#57. Page 2-5, Buggy Trails: Any evidence or stories of NG releases along the buggy trail? Again, what visual evidence might be seen in regards to NG?   | <i>There is no evidence or records of NG spills along the Buggy Trail. If spills did occur, the NG would very likely have exploded and not persisted in the soil. .</i>   |
| M                  | MB#59. Page 2-5, Objectives: Maybe a percentage of samples analyzed for NG?  | <i>Based on discussions with Ecology, the sampling program for the New Nitrator Area will consist of the</i>  |

| Subject Categories  | Ecology Comments   | Pacific Powder Team Response  |
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|   |  | <i>surface soil sampling program proposed in the RI Scoping Memo as well as installation and sampling of a monitoring well installed downgradient of the Nitroglycerin Storehouse.</i>  |
| <b>9.0 Mix, Nitro Cotton, and DNT Melting Houses</b><br><br>A | MB#60. Page 2-7, top paragraph: What is the rationale for doing sub-surface sampling rather than surface sampling? Or compared to some other depth interval? | <i>Both surface and subsurface soil sampling is proposed for the Mix House area. Please see response 8.E (Comment DA#33). Based on discussions at the meeting, Ecology concurred with this approach.</i>  |
| B   | MB#61. Page 2-7, DNT Melt House: Again, why subsurface sampling between 2 and 3 feet?  | <i>Please see response 8.E (Comment DA#33). Based on discussions at the meeting, Ecology concurred with this approach.</i>  |
| <b>10.0 Magazines</b><br><br>A                                | DA#37. p 2-8: "Because of their age, it is highly likely ... contained lead-based paint."<br>How about lead sheathing, floors, walls, etc?                   | <i>We do not have as-builts or other construction information for the magazines. However, magazines at the W/D site did not contain lead flooring or sheathing. Following the demolition burning of the magazines, Dyno characterized the residual burned ash material prior to disposal at an off-site landfill. A composite sample collected of the magazine ash was tested for metals and contained only 23 mg/kg of lead. Surface soil testing performed at the magazine sites during the Phase 2 investigation did not encounter lead concentrations in excess of MTCA Method A unrestricted or ecological terrestrial wildlife indicator concentrations. Additional surface soil sampling for lead will be performed in the magazine areas as part of the RI field investigation.</i> |

| Subject Categories | Ecology Comments  | Pacific Powder Team Response   |
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| B                  | <p>DA#38. p 2-8: Regarding sampling at the Magazines: As stated above regarding the NGRR, this sampling exercise will answer the question of whether or not contamination exists around the Magazines. I am uncomfortable with the limited number of samples proposed (e.g., only three at Magazines 4). I don't believe the few sample locations proposed will be sufficient to provide a defensible "yes/no" answer to that question. If the sampling (grid/locations) isn't tighter, we won't be able to say with any confidence that contamination was not present around the Magazines. I believe we used a 25-foot spacing at W/D but this was more to locate hotspots after earlier sampling confirmed a problem. We want enough samples to say with confidence that contamination does not exist at this area. Of course, if sampling does detect contamination - even below MTCA (at some "significant" level - perhaps two times background), this will necessitate additional sampling. So there is a balance between having enough initial samples to answer the yes/no question and ideally eliminate a need for additional samples and having too few (doesn't adequately answer the question which necessitates more sampling) or too many samples (wasting time/money). In my experience, it is always better to err on the side of more samples as it almost always answers the question and eliminates the need for further sampling.</p> | <p><i>Please see response 10.A (Comment DA#37). Ecology agreed that sufficient sampling has been proposed in the Scoping Plan to address characterizing potential lead impacts within the magazine areas. Based on discussions with Ecology, aerial deposition grid sampling proposed in the Scoping Memo will be expanded southward to include areas surrounding Magazines 3 and 4.</i></p> |
| C                  | <p>MB#18. Lead shielding was used in the 4 magazines on site? They were burned. What surficial soil sampling has</p>  | <p><i>We do not know whether lead shielding was used within the Pacific Powder magazines. Lead shielding</i></p>   |

| Subject Categories   | Ecology Comments  | Pacific Powder Team Response  |
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|  | occurred in the vicinity of those four buildings?   | <i>was not utilized within magazines located on the W/D site. As part of the Phase 2 investigation, five surface soil samples were collected and tested for metals at four magazine sites (total of 20 samples). Lead concentrations observed in the soil samples were generally below 50 mg/kg. The highest lead concentration observed in the magazine surface soil samples was 62 mg/kg (MAG1-SS5). As discussed in the RI Scoping Memo, we are proposing to collect additional samples at the magazines (including what we now believe to be Magazine 2 located in the southeast corner of the site).</i> |
| D  | MB#62. Page 2-7 & 8, burning of buildings with lead based paint. Would we tend to see lead in nearby soils, or further away? What about a few test pits to look for visible signs of paint chips? | <i>We did not see visible evidence of paint chips in the magazine areas during the Phase 2 sampling event. We anticipate that the highest concentrations of lead will be observed in surface soils (upper 6 inches) surrounding the former magazine buildings and possibly along the adjacent berms. Surface soil sampling of the magazine berms will be conducted as part of the RI field investigation. Based on discussions at the meeting, Ecology concurred with this approach.</i>  |
| 11.0 Lab Buildings/<br>Dynamite and<br>Gelatin Houses<br><br>A | MB#9. What chemicals were used in the laboratory?   | <i>Mr. Pyle indicated that a nitrometer containing mercury was used in the Hercules laboratory located northwest of the Mix House and south of the main road into the Powder Plant. We also assume that small amounts of dynamite products were being tested within the Hercules laboratory.</i>  |
| B  | MB#17. The gelatin, dynamite, and mix houses were   | <i>As noted in Table 2 of the Phase 2 report, three surface</i>   |

| Subject Categories                                 | Ecology Comments  | Pacific Powder Team Response  |
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|  | suspected of having lead flooring and were demolished and burned. What surficial sampling was done in the vicinity of those specific buildings? | <i>soil samples were collected and analyzed for metals from Dynamite Houses #1 and #2, and Gelatin Houses #1 and #2 (total of 12 samples). Lead concentrations observed in the soil samples were below 50 mg/kg.</i>  |
| C  | MB#63. Page 2-9, What is an ESD lab?  | <i>We suspect that it was an engineering lab since it was located next to the engineering office. We recently obtained a better reproduction of the Pacific Powder site plan - it indicates that the lab was designated as the "EGD" lab.</i>   |
| D  | MB#64. Page 2-9, Is it better to collect the soil samples from 2 to 3 feet BGS rather than near surface samples?                                | <i>Surface soil sampling of the Hercules laboratory located northwest of the Mix House and south of the main road into the Powder Plant was performed during the Phase 2 investigation. Subsurface soil samples are being proposed in the RI to evaluate the potential for subsurface releases of mercury. Based on discussions at the meeting, Ecology concurred with this approach.</i>   |
| 12.0 Farm House Burn Pit and Seismic Pond<br><br>A | DA#5. p 1-5: "... testing activities did not encounter "hazardous contaminants."" What did they sample for? Only TPH?                           | <i>Additional documentation from Dyno Nobel would be useful to address these questions. Based on recent documentation provided by Dyno, it appears that they were looking primarily for the presence of unburned blasting caps within the Farm House Burn Pit area. Dyno apparently encountered wire and detonation cord, but no unburned caps. . In the Scoping Memo, we are proposing to assess soil quality in the Farm House Burn Pit area.</i> |
| B  | MB#34. Page 1-5, 3 <sup>rd</sup> paragraph: The seismic pond. What was it tested for that Dyno Nobel used to say it was clean?                  | <i>We do not have any records containing sampling data for the Seismic Pond. However, we do not anticipate encountering significant soil quality issues in this area.</i>   |



| Subject Categories                            | Ecology Comments  | Pacific Powder Team Response  |
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|   |   | <p><i>Ed Meeks (Hercules consultant) indicated that soil and water quality typically has not been significantly impacted within seismic ponds located at other Hercules facilities. Ken Dunkin of APPCO stated that sediment at the bottom of the pond was removed and disposed of off site prior to decommissioning the pond. Because the Seismic Pond area is now a well vegetated wetland-like area, soil sampling via test pits would be highly destructive to this habitat. Because of the gravelly nature of soils in the Seismic Pond area, recovery of soil samples using standard drilling techniques is not likely to be feasible. Based on discussions with Ecology, it was decided that installation and sampling of groundwater from a temporary wellpoint (installed using non-destructive techniques such as by hand or lightweight portable rigs) is the best approach for evaluating potential environmental impacts associated with the Seismic Pond.</i></p> |
| C   | <p>MB#65. Page 2-10, Why would one sample at 4 to 5 feet BGS rather than just below any waste encountered, at the former farm house burn pit?</p> | <p><i>If no waste is encountered (i.e., waste was removed by Dyno), soil samples will be collected at the base of the pit (reported to be 4 to 5 feet below ground surface). If waste is encountered, samples will be collected within the waste-containing materials. Based on discussions at the meeting, Ecology concurred with this approach.</i></p>   |
| <b>13.0 Trailer Storage and Miscellaneous</b> | <p>MB#66. Page 2-11, Trailer storage and misc. disturbed areas, why not do trenching in these areas to visually</p>                               | <p><i>The most likely impacts to occur in these areas are surface releases from vehicles. At the meeting, it was</i></p>  |

| Subject Categories              | Ecology Comments   | Pacific Powder Team Response   |
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| <b>Disturbed Areas</b><br><br>A | look for TPH contamination because that is relatively easy to see?   | <i>agreed that if significant surficial contamination is observed, trenching would be performed to define the vertical extent of soil impacts.</i>   |
| <b>14.0 MEAN Plant</b><br><br>A | DA#4. p 1-5: "A large volume of diesel-impacted soil ... No diesel-range hydrocarbons were detected ... bioremediated on site...." Was soil/groundwater analyzed for BTEX? How were samples "bioremediated"? Was confirmational sampling done? If so, how? | <p><i>Based on the information we have, soil was mainly analyzed for TPH via 418.1 but some BTEX was performed by Geowest (Exhibit 22B to the 1994 Campbell and Dunkin Report). BTEX was detected in two soil samples collected beneath a transformer in the MEAN Plant area that was accidentally knocked down. According to Dyno reports, soil impacted by the transformer spill was cleaned up. Groundwater sampled by Conrex (1994) in the MEAN Plant was tested for TPH-D only. Hart Crowser sampled for VOAs in the three wells recently installed in the MEAN Plant area; no BTEX compounds were detected.</i></p> <p><i>Olympic Environmental ("Olympic") bioremediated soil using a biopile technique as noted in Package AC of the 1995 Dunkin report and in a February 1996 report included with the recent submittal from Dyno. Confirmational soil and groundwater sampling and analysis were conducted by Dyno and are described in the 1994 and 1995 reports.</i></p> |
| B                               | MB#33. Page 1-5, 2 <sup>nd</sup> paragraph: What were the results of the bioremediation? Where is the soil now? Groundwater contamination w/ TPH? Isn't 27 feet BGS into the water table aquifer?  | <i>We understand that Dyno retained Olympic to bioremediate approximately 800 cubic yards of diesel-impacted soil derived from MEAN Plant cleanup activities. Based on a February 1996 report issued by Olympic (Report of Remedial Activities - Former MEAN</i>   |

| Subject Categories | Ecology Comments | Pacific Powder Team Response   |
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|                    |                  | <p><i>Plant Facility), diesel-impacted soils were bioremediated for a period of approximately 6 months. In November 1995, ten soil samples were collected from the treated soil pile and tested for diesel-range hydrocarbons (WTPH-D). In addition, groundwater samples were collected from the three monitoring wells previously installed at the MEAN Plant and tested for diesel-range hydrocarbons. No detectable concentrations of diesel-range hydrocarbons were observed in the soil and groundwater samples. The report does not document the final disposition of the treated soil.</i></p> <p><i>Although the water table aquifer is typically encountered at depths of approximately 16 to 20 feet below ground surface in this area, it does not appear that groundwater quality was significantly impacted by petroleum releases in the MEAN Plant area. In 1994, CONREX installed and sampled three monitoring wells within the MEAN Plant area. No diesel-range hydrocarbons were detected in the three wells. Mark Johns (former Citifor consultant who observed Dyno remediation activities) indicated that groundwater was encountered in portions of the MEAN Plant excavations but that it generally did not appear to be impacted. During its Phase 2 investigation, Hart Crowser installed and sampled three groundwater wells in the MEAN Plant area. One well (MP-MW-1)</i></p> |

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|                                |  | <i>contained detectable TPH as diesel at a concentration of 0.437 mg/L.</i>  |
| C                              | MB#35. Page 1-5, 4 <sup>th</sup> paragraph: Was there any sampling for PCBs under any of the transformers?   | <i>Yes. Dyno sampled soils beneath a transformer at the MEAN Plant that was accidentally knocked down during remediation. Aroclor 1260 was detected in a transformer oil-containing soil sample at a concentration of 0.74 mg/kg. Dyno indicated that they removed this impacted soil and disposed of it off site.</i>   |
| 15.0 Drum Burial Area<br><br>A | DA#6. p 1-7: The fact that more drums were discovered leads me to believe that additional trenching work needs to occur in the DNT drum area.  | <i>The geophysical survey conducted by Conrex indicated the presence of drums in areas where they were later found via excavation. To confirm that there are no drums located outside of the area covered by the Conrex survey, it was decided that an additional geophysical survey should be performed as part of the Drum Burial Area (DBA) Interim Remedial Action. An update to the IRAP for the DBA has not yet been developed. The scope of the survey will be described in the updated Interim Remedial Action Plan (IRAP) for the DBA. The original IRAP document was previously issued to Ecology (dated August 14, 2003).</i> |
| B                              | DA#8. p 1-7: "AETS packaged and transported most of the drums and associated debris for off-site disposal...." Most of the drums? What happened to the rest? Why was contaminated soil left behind to potentially leach rather than being removed? When will the remaining contaminated soil be removed? | <i>As noted on bottom of page 1-7 of the Scoping Memo, AETS removed most of the drums from the DBA in 1998. Hart Crowser worked with AETS to remove the remaining drums in 1999. Dyno stopped cleanup of the DBA in late 1998 or early 1999. When Citifor took over DBA cleanup activities in August 1999, it made sure that its consultants covered stockpiles with heavy plastic to minimize exposure to water or wind, and</i>  |

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|                    |  | <i>arranged to have remaining drums and debris transported off-site. As noted in the Draft IRAP, stockpiles will be disposed of when additional soil remediation occurs in the DBA.</i>   |
| C                  | DA#9. p 1-8: "... well HC-MW-3 contained an estimated concentration of 7 ug/L 2,6-DNT." What was the total DNT result? Why does the next sample discussed provide the total DNT number but the 7 ug/L MW-3 result does not?  | <i>As noted in the "Results of Pre-Excavation Sampling and Analysis Program" document dated February 18, 2003 ("Pre-Excavation Report"), no 2,4-DNT was detected in this sample. Therefore, the 7 ug/L concentration represents a total DNT value. DNT concentrations reported in future reports will be presented as total values.</i>   |
| D                  | DA#10. p 1-9: "Detected DNT concentrations ranged from 0.0967 to 0.274 ug/L." Since the report is inconsistent in reporting total DNT versus DNT results for 2,6 or 2,4 separately, what does this range refer to; total DNT or 2,6 or 2,4? What is the total DNT range?   | <i>The reported range is for total DNT (see Table 7 of Pre-Excavation report). As discussed above, DNT concentrations in future reports will be reported as total DNT.</i>  |
| E                  | MB#20. Where is the DNT data for the soil concentrations/sampling conducted within the base and the walls of Excavation Area #1 and #3a? I have a hand drawn map showing sample locations (composites) but no corresponding results, at least that I can find?   | <i>Soil quality data for Excavation Areas 1 and 3a are presented in the Pre-Excavation Report and Draft Interim Remedial Action Plan – Drum Burial Area document (issued by Hart Crowser on June 10, 2003).</i>   |
| F                  | MB#21. The hand drawn map of Excavation Area #2 show DNT concentrations of 87, 490, and 610 PPM. Excavation Area #3 show DNT concentration ranging from less than one ppm to as high as 4,400 ppm? Did those high levels get excavated and added to the stockpiles? Where is the data for Excavation Areas 3a and 1? | <i>Many of the soil sample locations from the AETS data were removed and placed in stockpiles. John Teitz of AETS identified which soil volumes corresponding to sample locations were removed and which were not. Per John Teitz, Table 1 in the Pre-Excavation report (AETS data) only includes those samples that remain in the excavation per John Teitz. Data for Excavations 3a</i> |

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|                    |   | <i>and 1 can be found in the documents discussed above in response 15.E (Comment MB#20).</i>   |
| G                  | MB#22. Is the data from the DNT drum cleanup conducted by Waste Management (AETS) summarized in a report or is it just the raw lab data and the field notes/map?  | <i>Please see response 15.E (Comment MB#20). We understand from AETS that no formal report was produced for Dyno.</i>  |
| H                  | MB#23. On page 4 of the 2/18/03 Hart Crowser report (Results of Pre-Excavation Sampling and Analysis Program - Drum Burial Area) it states that "If soil data collected as part of the pre-excavation sampling program are consistent with the previous Hart Crowser testing data, the AETS data should not be considered valid and should not be used to define areas requiring remedial action." What does that statement mean? Ignore the high DNT concentrations detected during the AETS sampling effort? The lab screwed up? Because Hart Crowser cannot duplicate the results from AETS therefore the AETS data is suspect? Why isn't the Hart Crowser/STL data suspect? | <i>During the process of defining and scoping future cleanup actions to be performed in the Drum Burial Area, Hart Crowser performed several rounds (October 1999 and January 2001) of soil sampling to delineate DNT-containing "hot spots" previously reported by AETS (1998) in Excavation 3. The same laboratory (STL - formerly known as Sound Analytical) was used to test for DNT in each of these investigations. However, DNT was either not detected or present at much lower concentrations in the "hot spot" areas previously identified by AETS. No negative biasing or other quality control issues were identified in the 1999 or 2001 datasets. We contacted AETS and discussed the quality of their 1998 soil data because records documenting whether soils associated with particular samples were excavated and stockpiled or remained in place were not completely clear. It is possible that some of the 1998 samples reported in Table 1 of the Pre-Excavation Report actually represent soil that was removed and stockpiled. Inconsistencies between the Hart Crowser and AETS soil sampling events were discussed with Marcel Szyszkowski of Ecology in June</i> |

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|                    |  | <p><i>of 2002. Based on these discussions, an additional round of soil sampling was proposed to verify or refute the AETS data. Provided that the proposed soil explorations and testing were performed in a technically defensible manner, Marcel agreed that the AETS results could be considered not representative of current conditions and not be used to define areas requiring remedial action.</i></p>   |
| I                  | <p>MB#24. What about the high concentrations of DNT in soils that are contained in the lab data sheets from Sound Analytical? Are those data pre- or post-excavation of the drums? Was there a second round of excavations (deeper) following the receipt of results from bottom and side-wall sampling?</p> | <p><i>We suspect that the lab reports Ecology is referring to are associated with drum and waste/suspect material sampling performed by AETS in March of 1998. These materials were reportedly excavated and disposed of off site along with the drums. Additional Sound lab reports generated in August of 1998 include both samples of material remaining in place and soils excavated and stockpiled. Our only way to determine which samples were associated with soil left in place vs. soil excavated and stockpiled was through conversations with John Teitz of AETS. Please also see responses 15.F and 15.H (Comments MB#21 and MB#23).</i></p> |
| J                  | <p>MB#25. In the 2/18/03 Drum Burial Area report, why were samples collected at 2 and 4 feet below grade? Why no surficial samples? If trying to reproduce/confirm AETS results, it seems like samples should have been collected from the upper few inches of soil, not 2 and 4 feet below grade.</p>       | <p><i>Soil samples collected during the Hart Crowser investigations were predominantly collected at the same depths and locations as the AETS samples. The reference to 2 to 4 feet below grade refers to the "undisturbed" or "non-excavated" surface grade. Most of the Hart Crowser soil samples were collected along the side walls and bottoms of pre-existing trenches and</i></p>  |

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|                    |  | <i>excavations that were dug to depths of roughly 3 to 4 feet below "undisturbed" surface grade. Samples were collected approximately 0.5 foot into the sides or bottom of these pre-existing trenches and excavation side walls to minimize potential bias affects of photodegradation.</i>   |
| K                  | MB#27. What about photo-degradation of DNT in the excavations? Could that explain where the high concentrations of DNT went? What about leaching of the DNT from the soil? Were DNT crystals observed at any time or location on site? | <i>Photodegradation in near-surface soil is likely an important attenuation mechanism within the open excavations of the Drum Burial Area and could be responsible for the apparent decrease in DNT concentrations in shallow soil. Leaching of DNT from the excavation soils likely also occurred, however, observed DNT concentrations in site groundwater have been relatively low (less than 10 ppb). While DNT crystals were reported by Conrex and AETS during drum removal activities, we have not seen any evidence of DNT crystals in the remaining Drum Burial Area soils.</i> |
| L                  | MB#37. Page 1-7, 2 <sup>nd</sup> to last bullet: Why weren't the soil stockpiles disposed of?  | <i>Please see response 15.B (Comment DA#8).</i>  |
| M                  | MB#38. Page 1-8, 1 <sup>st</sup> paragraph: What happened to the higher concentrations of DNT?   | <i>Please see responses 15.H and 15.K (Comments MB#23 and MB#27).</i>  |
| N                  | MB#39. Page 1-8, last paragraph: "Since chemical analytes...above concentrations of concern during the first round of monitoring, the..." What was detected that wasn't "above concentrations of concern"?                             | <i>Please see Table 4 of the Pre-Excavation Report . Several metals (including Cr, Cu, Ni, and Zn) were detected in the Drum Burial Area groundwater samples but were present at concentrations below MTCA Method A or B drinking water cleanup levels.</i>  |
| O                  | MB#40. Page 1-9, 2 <sup>nd</sup> to last paragraph: What was the   | <i>Soil sample BS-20-S2 was collected 4 feet below</i>   |



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|   | depth of the samples (that had high TCLP results)?   | <i>existing grade within Excavation 3 (about 6 or 7 feet below surface grade next to the excavation).</i>   |
| <b>16.0 ABS Landfill</b><br><br>A       | MB#32. Page 1-5, top paragraph: Surveyed locations were not provided. How about general locations within the ABS landfill.   | <i>General sampling locations were provided but were not keyed into permanent landmarks that could be located in the field.</i>   |
| B                                       | MB#47. Page 1-16, is the ABS landfill within the gravel mining footprint? If so, will all the waste be excavated and disposed of offsite?  | <i>The Drum Burial Area and ABS landfill will be excluded from the mining permit and will not be mined</i>  |
| <b>17.0 Powder Plant</b><br>A           | MB#30. Page 1-4: Where did the soil from the Powder Plant UST removal go?  | <i>We do not have records that document disposal of the UST soils.</i>  |
| <b>18.0 Groundwater Issues</b><br><br>A | DA#11. p 1-10: "Two of the wells (PP-MW1 and PP-MW4) within the powder plant area were dry and could not be sampled." Was this a one-time thing or have the wells been dry since installation. If the latter, they need to be replaced/deepened so groundwater can be sampled at these locations.  | <i>This was a one-time sampling. Well PP-MW6 was added to the Phase 2 monitoring well network to replace the dry well PP-MW1. If possible, we will sample all six wells as part of additional groundwater monitoring proposed in the RI Scoping Memo. If well PP-MW-4 remains dry, we will attempt to sample the well during the wet season.</i>  |
| B                                       | DA#12. p 1-10: "Results of the Phase II Investigation indicated that site groundwater quality does not appear to be significantly impacted." I'm not sure what "significantly impacted" means, but we're told about wells with "oily, waxy blobs"; pH of groundwater of 5.5; DNT levels exceeding standards, etc. I would disagree and say groundwater has definitely been impacted. | <i>The oily blobs and pH of 5.5 mentioned in this comment are associated with the 1996 Robinson and Noble sampling of well PP 5, which was an old plant well used for grounding (see discussion on page 1-6 of the Scoping Memo). Pacific Groundwater Group (PGG) performed several field investigations (including performing a slug test and testing groundwater with depth in an adjacent boring) to evaluate apparent water quality impacts in well PP 5. PPG determined that well PP 5 is blocked off and not in good hydraulic connection with the surrounding aquifer. PGG</i> |

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|                    |  | <p><i>concluded that well PP 5 does not contain groundwater representative of the surrounding formation. To further evaluate potential water quality impacts in this area, we also installed a well (PP-MW2) about 20 feet downgradient of well PP 5. Groundwater sampled from this well exhibited a pH of 7.3 and had a specific conductivity of 353 us. This pH is near neutral and the conductivity is about two orders of magnitude less than the conductivity (30,000 to 140,000 us) measured by Robinson and Noble in well PP 5. In addition, no exceedances of hydrocarbon groundwater cleanup levels were observed in well PP-MW-2 or any other well sampled as part of the Phase 2 investigation. Additional field investigation within well PP 5 will be performed to evaluate its hydraulic connection to the aquifer and to properly abandon the existing plant wells (PP-1 through PP-9).</i></p> |
| C                  | <p>DA#14. p 1-11: "... inconsistent with other site data and were considered suspect." We need to avoid eliminating/ignoring data because of apparent inconsistencies.</p> | <p><i>These results were inconsistent with the conceptual model and were considered suspect for the reasons identified in the Phase 2 report and on page 1-11 of the RI Scoping Memo. We performed an additional investigation to see whether elevated sulfate observed during the Phase 2 was actually present in the Old Nitrator (ON) and New Nitrator (NN) areas. Results of the re-sampling showed that STL and ARI results were very consistent and were at least 2 orders of magnitude lower than the original Phase 2 results.</i></p>   |

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|                    |  | <p><i>The results of the RI groundwater sampling event outlined in the Scoping Memo will be used to further clarify sulfate distributions in the ON and NN areas.</i></p>  |
| D                  | <p>DA#15. p 1-11: "... no other evidence of acid impacts was observed in the groundwater samples." Wasn't this where groundwater sample(s) had a reported pH of 5.5? (See p 1-6.)</p>  | <p><i>The well exhibiting a pH of 5.5 is well PP 5 located in the Powder Plant, which is over 1,000 feet away from the Old and New Nitrators. Please see response 18.B (Comment DA#12).</i></p>  |
| E                  | <p>DA#16. p 1-11: "... may be the result of laboratory error." Again, we need to avoid eliminating/ignoring data because of apparent inconsistencies.</p>  | <p><i>Please see response 18.C (Comment DA#14).</i></p>  |
| F                  | <p>DA#17. p 1-12: "Concentrations of sulfate ... similar to concentrations encountered in other portions of the site...." However, the highest sulfate concentrations were an order of magnitude higher than "in other portions of the site".</p>  | <p><i>Sulfate concentrations reported by both STL and ARI for well ON-MW-3 and the four New Nitrator area wells during the resampling (3 to 7 mg/L) fall within expected regional background levels and are consistent with other areas of the site (3 to 10 mg/L).</i></p>  |
| G                  | <p>DA#19. p 1-16; 2<sup>nd</sup> bullet: "... monitoring will be performed on the wells installed during the Phase II investigation as well as the four Drum Burial Area wells ... Two additional monitoring wells will also be installed and sampled ... downgradient of the DNT Melting house...." All of the wells (monitoring and PP wells) should be sampled.</p> <p>In addition to the two wells proposed to be installed; at a minimum, a monitoring well is also needed down-gradient of PP-5 and down-gradient of Excavation 3A (drum burial area).</p> <p>I was unable to find the DNT Melting house on any of</p> | <p><i>Additional wells will be added in the DBA (one located along the northwest corner of Excavation 1 and another south of that off the end of Trench EX1T1), properly abandon the old plant PP wells, and perform additional field evaluation of well PP-5 (see response 18.B (Comment DA#12)). Ecology agreed that since well PP-MW-2 is located approximately 20 feet downgradient (west) of well PP-5, an additional well in this area is not necessary.</i></p> <p><i>We suspect that the DNT Melting House was located within the Buggy House. Information provided by</i></p> |

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|                    | the maps. Do we know the exact location of this house?   | <i>Dyno or Bill Garson may be useful to confirm this theory.</i>  |
| H                  | DA#41. p 2-12: Regarding groundwater sampling: see comments on pages 1-10 and 1-16. I suggest sampling in January or February to give the PP-MW-1 and 4 wells their best chance. | <i>Please see response 18.A (Comment DA#11).</i>  |
| I                  | MB#15. Have soil and groundwater been sampled for perchlorates since they were used on site? What is the solubility of sodium perchlorate?                                       | <i>Sodium perchlorate has a very high aqueous solubility, low adsorption potential, and would be expected to be highly mobile in groundwater. We did test for perchlorate in groundwater as part of the Phase 2 in areas where perchlorate was historically stored and/or used (including the Powder Plant and Mix House). Perchlorate was not detected in any of the wells sampled. We are proposing to perform additional groundwater testing for perchlorate in these areas as part of the RI field investigation.</i>         |
| J                  | MB#36. Page 1-6, 1 <sup>st</sup> paragraph: Can you explain the oily/waxy "blobs"?   | <i>Robinson and Nobel described seeing "oily/waxy blobs" in well PP 5 during their 1996 groundwater quality study. Well PP 5 was used for grounding and was not in good hydraulic continuity with aquifer (see response 18.B (Comment DA#12)). No evidence of sheen or exceedances of petroleum hydrocarbon groundwater cleanup levels were observed in well PP-MW2 installed approximately 20 feet downgradient of well PP 5. Additional investigation of well PP 5 will be performed as part of the RI field investigation.</i> |
| K                  | MB#41. Page 1-10, last paragraph: "Results of the Phase II....does not appear to be <u>significantly</u> impacted." What   | <i>During the Phase 2 investigation, we did not detect constituents of potential concern in site groundwater at</i>   |

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|                    | does significantly mean? Concentration? Arial extent?                 | <i>concentrations exceeding MTCA drinking water cleanup levels except for sulfate within the Old and New Nitrator areas. The presence of sulfate was suspect and later determined to be the result of laboratory error (please see response 18.C (Comment DA#14)). Groundwater quality at the site will be re-evaluated as part of the RI field investigation program.</i> |
| L                  | MB#43. Page 1-11, 3 <sup>rd</sup> paragraph: Oops, another lab error? | <i>Yes. The presence of sulfate in Old and New Nitrator groundwater was considered suspect and later determined to be the result of laboratory error (please see response 18.C (Comment DA#14)). The distribution of sulfate in these areas will be further evaluated as part of the RI field investigation program .</i>  |